



Science News-Letter

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PSYCHOLOGY

Test 158 Pairs of Twins

The meaning of the phrase "as much alike as twins" has been tested so far as mentality goes on 158 pairs of twins in New York City. The tests were conducted at Columbia University by Gladys Tallman. The mental ratings of the twins were compared with the mentality of brothers and sisters whose ages were one to four years apart.

Twins are about twice as much alike mentally as are brothers and sisters of different ages, the tests showed. Boy-girl twins are not so much alike as girl twins or boy twins. And twins of the same sex that look alike are more nearly the same mentally than those that look distinctly different. The twins included 63 pairs who looked so much alike that they were almost indistinguishable.

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HEAT AND WALLS

J. L. Finck, of the U. S. Bureau of Standards at Washington tests a "conductimeter" a new apparatus for measuring the amount of heat that travels through walls, and determining whether the walls of a house help to heat the out of doors.

Prehistoric Man Found in East Africa

By E. N. FALLAIZE

Mr. Fallaize as secretary of the Royal Anthropological Institute, London, is in touch with the leading European research on man's past.

A discovery which may prove of the greatest importance in helping to solve the problems of the distribution and migrations of early man in Africa, is announced from Nairobi, Uganda.

L. S. Leakey, a member of the Cutler Expedition which is searching for the remains of dinosaurs in East Africa, has been specially detailed to investigate the archaeology and early history of man in Uganda. He has now found a complete human skeleton at Nakuru buried in the flexed position, with knees drawn up to the chin, at a depth of twelve feet. With the skeleton were over a hundred stone implements described as "Mesolithic," being mostly lunates (crescent shaped) and backed points of obsidian with a few bone points. The depth at which the skeleton was found and the character of the stone implements found with it would seem to indicate a very great antiquity, though how old it is it is not yet possible to say.

The skeleton is that of a six-foot man and is said to be "not negroid." The skull has a nose of medium width and the jaw is not thrust forward. In life this man, therefore, did not have the broad flat nose and the projecting jaw characteristic of the usual negro type.

This is not the first discovery relating to early man to be made in Uganda. Just before the war a skull was found which was thought to be of a very early age, and, indeed, in the view of some scientists it was thought it might even go back as far as the Old Stone Age, and possibly be contemporary with stone age men of Europe. Numerous discoveries of stone implements have also

been made. Although it is not possible, owing to the difference in geological conditions, to say with certainty how these implements compare with those of the Palaeolithic Europe in actual dating in terms of years, in type the large chipped implements of rougher and heavier form, belonging clearly to the earliest phases of the Stone Age in Uganda, are similar to those of the early stages of the European Palaeolithic Age, and are to be compared with the early implements found in other parts of the world wherever evidences of the existence of the Stone Age have been found.

In connection with the present discovery, however, the most interesting implements which have been

(Just turn the Page)



CANNED FOOTPRINTS

Dr. Charles W. Gilmore, paleontologist of the National Museum, examines fossil footprints made in sand by an ancestor of the mighty dinosaurs. Dr. Gilmore found the sandstone slab 1,000 feet down from the top of the Grand Canyon. The footprint signature dates back 300,000,000 years, according to latest estimates on the earth's younger days.

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Prehistoric Man

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found are the series of pygmy implements discovered in Uganda by Mr. Wayland, the government geologist, which are of the same type as the lunates and backed points or small knives of stone found with the skeleton at Nakuru. The diminutive implements, most of them less than an inch long, are characteristically of a very definitely geometrical form, often triangular, and are very widely distributed all over the world. They have been found in India, the Sudan, North Africa, Australia, Central Asia, and, of course, Great Britain and most of the other countries of Europe, especially France. The culture to which they belong is called Azilian, from a site in France, Mas d'Azil, a rock shelter in which they were first found. In date they belong to the transitional period between the Old and New Stone Ages which, in Europe, falls perhaps somewhere between 9,000 and 7,000 B. C. It cannot be said whether the Azilian implements found outside Europe are all as old as this; probably they are not. But it is possible that further research in East Africa may show that we have here in this discovery a branch of the Azilian race migrating south at a date not much later than that when this culture flourished in Europe. It is hoped and expected that the Kenya Government will assist Mr. Leakey with a money grant to carry on his researches for which further help is urgently needed.

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Ostrich feather fans were used by Egyptian pharaohs and princesses.

A method of attaching a searchlight to the nose piece of a spectacle frame has been devised to relieve eye strain for dentists.

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Foresters Meet to Discuss New Problems

On this page Frank Thone tells of some of the important papers presented at the meeting of the American Forestry Association at New Haven, Conn., January 28 and 29.

Economy and Forests

The present economy program of the government is proving an expensive and wasteful one when it comes to the protection of American forests from fire. It is resulting in losses to our resources far greater than the savings shown in the budget. This in substance is the charge made by George D. Pratt, president of the American Forestry Association in his address which opened their annual session at New Haven, Conn., last week.

"The forest law now in force recognizes that reforestation of our vast areas of cut-over land is the outstanding need in providing future forests, and that adequate fire prevention is the master key," Mr. Pratt said. "To encourage states and private individuals to protect their forests from fire, it authorizes an appropriation by the Government of two and a half million dollars annually. During the current fiscal year Congress and the Bureau of the Budget provided under this agreed program only \$710,000, while state and private agencies responded with expenditures for fire protection of almost \$4,000,000. I am glad to say that the new estimates provide for an increase of \$290,000, but we cannot escape the fact that the act is in danger so long as the federal government fails to occupy a position of leadership."

The various state governments are not making a creditable showing in their forestry programs, as compared with the federal government, in the opinion of F. W. Luening, Milwaukee editor, who addressed the meeting. Remiss though Washington has been in some respects, the central government has at least created great national forests and is doing active research in forest promotion and forest protection; but with two or three possible exceptions the state programs are of the "blue-print" variety. Mr. Luening believes that among other causes for this situation is the fact that business interests can exert pressure more effectively in their state capitals than they can in Washington, but he is of the opinion that when they come to see the advantages of having their supplies of future raw material grown on public land under government protection

they will change their policies radically.

Wood Wastes

Utilization of wood wastes by chemical manufactures was the topic of Carlile P. Winslow, director of the U. S. Forest Products Laboratory of Madison, Wis. Wood wastes are well suited for chemical exploitation, he said, but the trouble is that at present the supply far exceeds the demand, and it will continue to do so unless something radical happens to the industry. One-third of the wood grown on a given area is all that now finds its way to the market in any form, he said, and it is a big job to find uses for the other two-thirds. Even the rayon business, "baby giant" of timber industries, can grow to thirty times its present size before it will force a doubling of the present pulpwood production. The wood alcohol industry, now a large consumer of wood wastes, is threatened with stagnation and decline by the European synthetic methanol process. Grain alcohol can be made from wood much more cheaply than is possible at present by a new European process, and if the price of gasoline goes high enough to justify its manufacture on a large scale, a maximum of one and one-half billion gallons can be made annually from wood; but this possibility depends on an "if."

National Parks

National Parks are multiplying in number at the expense of quality, in the opinion of the association. The members of the association voted unanimously for a resolution condemning "the persistent efforts of many local neighborhoods to force into the National Park System inferior areas, to the inevitable lowering of the System's standards," and appealing to the people of the country to demand of Congress "laws which shall define and safeguard the National Parks System in its historic conception."

Resolutions were also passed urging the immediate enactment of the McNary-Woodruff bill to make possible the purchase of lands for national forest purposes in the eastern states, recommending that not mere acreage but also quality of the land and standing timber, and its usefulness as water protection be considered in acquiring such areas.

Airplanes and Forests

The Association went on record as regretting the withdrawal of Army airplanes which had been loaned for fire scouting, and recommended that the service be restored, or that Congress provide sufficient planes for this work. Fire protection in general is being badly neglected, it was claimed, and the folly of economizing on preventive measure and then spending money recklessly to stop fires once they get started was pointed out.

Water Supply

The importance of forests in the water supply of cities was discussed by William R. Copeland, sanitary engineer of the Connecticut State Water Commission. At the present time, he told his audience, our great cities will go great distances and spend vast sums of money to get forest water. He cited the instance of one New England city which, although it is located on the banks of a large river, spent \$7,000,000 on a tunnel through a mountain and under a good-sized lake, to carry water from a forested mountain watershed.

But even this willingness to spend huge sums for forest-purified and forest-conserved water will not in the end solve the whole water supply problem for the crowded urban areas of the East, Mr. Copeland insisted. The time will come when such supplies will be inadequate, and then we shall have to draw upon the present stream and lake supplies, now despised and feared as too polluted for human use. The problem of stream pollution is not beyond solution, he declared. Scientific engineering can even now reduce the amounts of mineral and organic impurities that get into our rivers, and progressive mill owners are ready to cooperate in applying modern methods if the municipalities will do their share. Forests also assist in keeping water pure, for water that drains into the streams from forested areas is cool, and cool water contains a larger percentage of oxygen to clean up the organic matter that gets into it. But as the stream becomes warmed by the addition of water from sun-beaten denuded areas, some of the oxygen leaves it, with the result that the pollution increases until the water is fit for neither man nor fish, nor any other decent living thing.

(Just turn the Page)

Forestry Meeting (Continued from Page 83)

Grass Conservation

"Should this harvest of grass fail for a single year, famine would depopulate the land." With this excerpt from a speech of the late Senator Inghalls as his text, Will Barnes of the U. S. Forest Service painted a vivid picture of the importance and romance of the grasslands in the history of the American nation.

The cow is the foster-mother of the race, and her sons have hauled the ponderous covered wagons of its migrations and pulled the plows that broke the pioneers' first furrows, Mr. Barnes reminded his hearers; and where cattle are to go, there must be grass. Many of the finest of the grasses in the older parts of the country are naturalized citizens: the brome grasses, orchard grass, even the famous Kentucky bluegrass; but out on America's real grasslands in the West there are none to equal the native gramagrass and curly mesquite and bunch grasses.

"No other country has such valuable winter ranges as we have throughout the arid regions of the far West, where the native grasses grow in regions of extremely limited rainfall," Mr. Barnes declared. "They cure on the ground equal to hay, furnishing feed for livestock during the winter months. Neither are there any other countries of which we know that can claim such areas of purely summer range as are found in our West in the high mountain regions, where the lush feed grows with astonishing rapidity in the spring. All this must be removed from these ranges each season or be lost forever.

"As with all of our resources, however, we Americans have been wanton destroyers of our grasslands, mainly through over-grazing. Today this

country has nearly 180 millions of acres of strictly grass lands—areas which under no known system of cultivation can ever be used for any purpose other than grazing livestock. This is an area larger than our largest state, Texas. Even at the low valuation of \$2 an acre it means over \$300,000,000 worth of public property lying idle and deteriorating in usefulness—a liability rather than an asset."

Mr. Barnes appealed for a scientific program of development for American grasslands. Conservation measures, he pointed out, are now effective in all the public domain except only in the grazing country, where they are of immediate and pressing importance.

New England

New England plans to recoup a part of her threatened prestige in industry by getting full value out of her "stern and rockbound coast" and the "murmuring pines and the hemlocks" of her forests as national recreation grounds; and she intends to tell the world about them, through a scientifically planned campaign of advertising.

The value to this picturesque and historic section of the country of what he termed its "intangibles" was discussed by Albert M. Turner, field secretary of the Connecticut State Park and Forest Commission. Mr. Turner announced that as an engineer he had always been used to dealing with things of strictly tangible value, but that like many of his fellow Yankees he has come to realize the "use" of beauty. Only he said, his section has lagged behind the rest of the country in providing areas for the specific purpose of recreation.

"New England has two per cent. of the land in the United States, seven per cent. of the people, and nine per cent. of the wealth," he stated, "yet of public land available for recreation we have now only one-half of one per cent. and this in spite of the fact that we have twenty-five million acres of land, or sixty per cent. of our total area, in wooded lands. The people of the United States have now set aside or acquired a hundred and forty-seven million acres of public park and forest, or almost eight per cent. of the land area of the forty-eight states; and they are steadily acquiring more."

The ratio of public land available for recreation, Mr. Turner admitted, is greater in the West, Idaho heading the list with thirty-three per cent. of her total area, while the percentage is "almost nothing in certain states that need not here be advertised." Yet the East is not wholly asleep, he pointed

ed out, for "New York has seven per cent and is buying more, while New Hampshire has seven per cent. and seems to like it."

Mr. Turner disclaimed any intention to lay down details of a scheme for "parking" New England, but he recommended that "for the benefit of its own people, its own timber supply, and its own watersheds, the section should promptly begin to formulate plans for the acquisition of at least eight or ten per cent. of its land area, or three to four million acres."

Cutting Forests Faster

Conservation of timber does not necessarily consist in not cutting it; some of our forest areas would be more profitable to the nation as a whole if they were cut faster and replanted. This in brief was one of the claims advanced by Robert B. Goodman, forest economist.

"There is still a vast supply of mature standing timber that needs to be cut and used," Mr. Goodman said. "There is something like six hundred billion feet of standing timber that is no longer growing, more than half of it in the process of decay and subject to insect, fire and storm hazard, all of it occupying space in productive forests that should be devoted to growing timber. This mature timber, the most valuable portion of the forest, is frozen capital until it is cut and used."

Mr. Goodman also advocated tax adjustment that will make it profitable for land owners to let their trees grow to full size, instead of encouraging them to cut immature timber because the land bearing it is not paying its taxes. He cited a case in California where immediately after a tax reduction became effective a large lumber concern stopped cutting twelve-inch trees and made a twenty-inch diameter their minimum logging limit.

A feature of the meeting was a large display of posters used in the educational campaign against the fire hazard due to carelessness with tobacco and campfires. Three judges passed on the exhibit, and awarded first prize to one from the Province of Quebec, showing a French "habitant" and his refugee family gazing sadly at the ruins of their cabin destroyed by a forest fire. Posters in the exhibit were in English, French, two Indian languages, Russian and Chinese. One, which attracted much attention, stated tersely: "This is God's country. Don't set it on fire and make it look like Hell."

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Brilliant Display of Winter Stars Now Visible

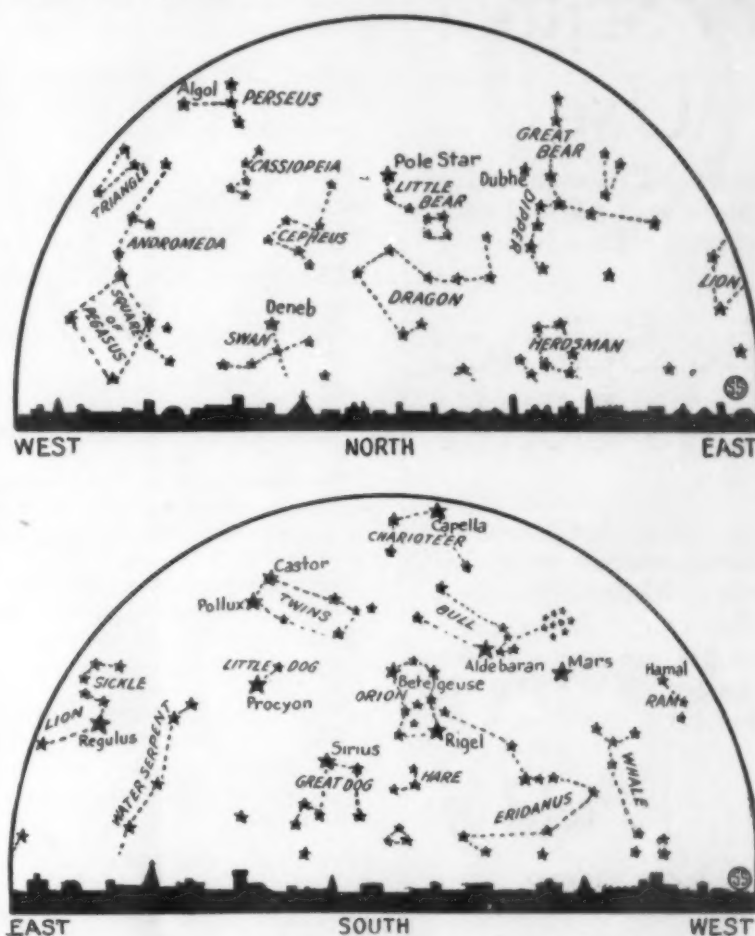
By JAMES STOKLEY

This month sees an end of the evening display of one of the planets of the autumn and early winter sky, for Jupiter has passed close to the sun. On the first of March it will be in opposition, which means that Jupiter and the sun will be in the same straight line from the earth. But Mars is still with us, shining with its ruddy glow in the south-west, just to the south of the Pleiades, the famous loose cluster of stars in Taurus, the Bull.

On February 25, Mercury, a planet which few people have ever seen, will be in a position where it will be visible low in the western sky at dusk, ready to be picked up by a keen eye. As it revolves around the sun in a year of 88 days, it is sometimes seen to the west of the sun, and sometimes to the east, when it is said to be in either western or eastern elongation. On the 25th, it will be in eastern elongation, which means that the sun sets a little while before Mercury. It is only a third as far away from the sun as the earth, so that it is never seen more than 28 degrees from our orb of day—a distance about the same as that between Betelgeuse and Sirius, two of the bright stars now in the southern sky. Its orbit is not circular, but elliptical, and as a result it seldom reaches the maximum elongation, on the average getting only about 23 degrees away from the sun. Twilight lasts until the sun is about 18 degrees below the horizon, so Mercury can never be seen for very long after complete darkness has arrived. This month the opposition is not as great as the average, being only 18 degrees, so that it can be seen at best only as a bright star in the evening twilight.

But the February evening sky makes up in stellar attractions for what it lacks in the planets. The winter sky is now in all its glory, for at no other time of the year can as many first magnitude stars be seen at once. In the whole sky there are twenty stars brighter than one and a half in the astronomical scale of magnitudes. Five of these are in the southern hemisphere and are never visible above our horizon. This leaves fifteen which we can see, and of these, eight are now in the sky at once, six of them forming a hexagon with another at the center.

Almost directly overhead is the



THESE MAPS SHOW the evening skies in February. Face north or south and the top or bottom one will show the stars as they appear to you in the sky.

yellowish-white Capella, astronomically alpha Aurigae, as it is the brightest star in the constellation of Auriga, the Charioteer. This is so bright that it is very easy to identify, for only Sirius, of the stars we can now see, exceeds it in brilliance. To the southwest of Capella is the orange-red star, Aldebaran, or alpha Tauri, the brightest star in the constellation of Taurus, the bull, and which was represented on the ancient star maps as the bull's eye, glaring at the nearby warrior, Orion. South, and a little east of Aldebaran, is a representative of Orion itself, in the form of Rigel, or beta Orionis, for it is the second brightest star in Orion. Rigel has the distinction of being one of the most brilliant of known stars, referring to its intrinsic brightness. In general the brightest stars are very close, but Rigel is at the respectable distance of 540 light years, one light year being the distance that a beam of light will travel in twelve months, going at

the rate of 186,000 miles a second, or about 6,000,000,000,000 miles.

Compared to Rigel, Sirius, to the southeast of it, and the next star in the hexagon, is next door to us, for we see it tonight by light that left it in 1918, instead of in 1387, which was the year that the light reaching us from Rigel left on its long journey. Sirius is the brightest of all the stars we see in the sky, partly, of course, because it is so close. Alpha centauri, the nearest known star, is at a little less than half the distance of Sirius, but it is one of the southern stars not visible from northern latitudes. Sirius, however, appears brighter than alpha centauri. It is also known as the "dog star," as it is in the constellation Canis Major, the great dog.

The great dog is one of the two that accompanied the mighty hunter Orion, the other one being represented by the next star in the hexagon, yellow-white Procyon, north-

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A camel is a less intelligent steed than a horse.

The Indians obtained blue and green paints from copper ore.

Cows' milk was thought to be unhealthy for babies in England in the seventeenth century.

Horned cattle take up 10 per cent. more space in a cattle car than animals without horns.

The death penalty was used against thieves long before it was applied against killers, says a criminologist.

Male mosquitoes have such weak mouths that they are unable to prey on man, as the bloodthirsty females do.

Simplified and standardized spelling of African dialects is being attempted to promote education in that country.

Airplane service across the Andes in Peru is expected to cut the trip down from the usual three weeks journey to only two days.

Hardening of the arteries was widespread among the Egyptians, even though their diet and daily life were not of a sort likely to lead to this disease.

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Winter Stars

(Continued from Page 86)

east of Sirius. This is in the constellation Canis Minor, the lesser dog, and is also very close, for it is only 10 light years distant. They look close together in the sky, and in fact they are but a relatively short distance apart—about four and a third light years, closer to each other than either of them are to the earth.

Completing our hexagon, we come to the orange colored Pollux, northwest of Procyon and southeast of Capella. Pollux is one of the two stars that form the twins, Gemini, the other member of the pair being the fainter Castor, just above Pollux. The ancients considered the Twins propitious to navigators, and the Romans swore by them, as they were two of their most popular gods. The remains of the temples to Castor and Pollux at Rome, and at Girgenti, are among the most famous of the Roman ruins. The Roman oath by them must have been very popular, for it has survived to the present day, in the slightly modified "by jiminy."

Finally, in the center of the hexagon is the famous Betelgeuse, or alpha Orions, the brightest star in Orion. This star is in the warrior's right shoulder, according to the old star maps, and in his upraised right hand he holds the club with which he is about to smite the giant bull Taurus.

The constellation Leo, the lion, now rising in the eastern evening sky, contains the eighth first magnitude star now visible. This is Regulus, or alpha Leonis, at the end of the handle of the "sickle," probably the most famous group of stars next to the Dipper and Orion. The blade of the sickle forms the lion's head.

Science News-Letter, February 5, 1927

Some clouds are 10 miles thick.

Codfish like to eat clams, shells and all.

In Siam, shipworms are planted and after three months are dug up and eaten.

The Greeks and Trojans practised chemical warfare, as is shown by mention of Greek fire and sulphur and charcoal fumes.

A smoke pump, which sucks smoke from a burning hose like a vacuum pump, is expected to prove useful in fire fighting.

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Library of Congress Classification

The classification of the Library of Congress has come into common use in the libraries of the country owing to the publication of the Government of the card index of all new books. We print below a list of the subject titles which are most used in the SCIENCE NEWS-LETTER. The full scheme of classification is contained in "Outline Scheme of Classes," issued by the Library of Congress.

B Philosophy.
BF Psychology.
G Geography, voyages, travel.
GA Mathematical and astronomical geography.
GB Physical geography.
GC Oceanology and oceanography.
GF Anthropogeography.
GN Anthropology. Somatology. Ethnology. Ethnography. Prehistoric archaeology.
GR Folklore.
GT Manners and customs.
GV Sports and amusements. Games.
HC Economic history and conditions. National production.
HE Transportation and communication.
HF Commerce.
HM Sociology. General.
L Education.
M Music.
N Fine Arts.
P Philology and linguistics.
Q Science. General.
QA Mathematics.
QB Astronomy.
QC Physics.
QD Chemistry.
QE Geology.
QH Natural history.
QK Botany.
QL Zoology.
QM Human anatomy.
QP Physiology.
QR Bacteriology.
R Medicine. General.
S Agriculture. General.
SB Field crops. Horticulture. Landscape gardening. Pests and plant diseases.
SD Forestry.
SF Animal culture. Veterinary medicine.
SH Fish culture and fisheries.

SK Hunting. Game protection.
T Technology. General.
TA Engineering—General.
TC Hydraulic engineering.
TD Sanitary and municipal engineering.
TE Roads and pavements.
TF Railroads.
TG Bridges and roofs.
TH Building construction.
TJ Mechanical engineering.
TK Electrical engineering and industries.
TL Motor vehicles. Cycles. Aeronautics.
TN Mineral industries. Mining and Metallurgy.
TP Chemical technology.
TR Photography.
TS Manufactures.
TT Trade.
TX Domestic science.
U Military science. General.
V Naval science. General.

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000 GENERAL WORKS—
010 Bibliography
020 Library economy
030 General cyclopedias
040 General collected essays
050 General periodicals
060 General societies
070 Newspapers
080 Special libraries. Polygraphy
090 Book rarities
100 PHILOSOPHY—
110 Metaphysics
120 Special metaphysical topics
130 Mind and body
140 Philosophical systems
150 Mental faculties. Psychology
160 Logic
170 Ethics
180 Ancient philosophers
190 Modern philosophers
200 RELIGION—
210 Natural theology
220 Bible
230 Doctrinal. Dogmatics. Theology
240 Devotional. Practical
250 Homiletic. Pastoral. Parochial
260 Church. Institutions. Work
270 Religious history
280 Christian churches and sects
290 Ethnic. Non-Christian
300 SOCIOLOGY—
310 Statistics
320 Political science
330 Political economy
340 Law
350 Administration
360 Associations. Institutions
370 Education
380 Commerce. Communication
390 Customs. Costumes. Folklore
400 PHILOLOGY—
410 Comparative
420 English
430 German
440 French
450 Italian
460 Spanish
470 Latin
480 Greek
490 Minor languages
500 NATURAL SCIENCE—
510 Mathematics
520 Astronomy

530 Physics
540 Chemistry
550 Geology
560 Paleontology
570 Biology
580 Botany
590 Zoology
600 USEFUL ARTS—
610 Medicine
620 Engineering
630 Agriculture
640 Domestic economy
650 Communication. Commerce
660 Chemical technology
670 Manufactures
680 Mechanic trades
690 Building
700 FINE ARTS—
710 Landscape gardening
720 Architecture
730 Sculpture
740 Drawing. Decoration. Design
750 Painting
760 Engraving
770 Photography
780 Music
790 Amusements
800 LITERATURE—
810 American
820 English
830 German
840 French
850 Italian
860 Spanish
870 Latin
880 Greek
890 Minor languages
900 HISTORY—
910 Geography and travels
920 Biography
930 Ancient history
Modern
940 Europe
950 Asia
960 Africa
970 North America
980 South America
990 Oceanica and polar regions

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BIOLOGY

NATURE RAMBLINGS

By FRANK THONE



Northern Neighbors

Many terrifying tales have come down to us about the blood-thirstiness and malice of the panther, or catamount, or mountain lion, all popularly accepted names for the puma, the largest of our native American cats. Recent investigations, however, have exploded most of these, and it now appears that under ordinary circumstances the mountain lion is an arrant coward.

Not so the smaller cats, however. They are of a different breed, being all of the genus *Lynx*. The smaller species is the wildcat, or bobcat; the boast that a man can "lick his weight in wildcats" is proverbial, and a deserved compliment—to the wildcat. No hunter who really values his dogs will venture them against a wildcat.

Even less so will he venture them against the big Canada lynx. This tuft-eared pussy, with harsh bristling fur and mean yellow eyes that fairly spit fight at you, is far and away the most formidable thing of its poundage in North America. Not even a grizzly bear could lick its weight in Canada lynxes.

Not only can they sell their lives dearly when brought to bay; the lynx tribe is mighty hard to bring to bay. Their keenness of sight and adroitness of action are so proverbial that the members of the oldest scientific society now in existence, the Italian Accademia dei Lincei, proudly named themselves the "Academy of Lynxes" when they were organized several centuries ago, and bear upon their insignia the figure of one of these sharp-eyed cats.

Whenever one sees a moose, whether a mounted specimen in a museum or sportsman's trophy room, or alive in his native woods of the North, it is hard to suppress a feeling that we are looking at an animal that belongs by rights to the past. He is so portentous, so monstrous, and his strangely shapen head and even more strangely shapen horns so grotesque, that we instinctively set him back among the shaggy cave bears of the

(Just turn the Page)

ETHNOLOGY

Indians' Religious Tortures

By ALBERT B. REAGAN

The author of this article is a well known authority on Indian life and customs.

The Yaqui Indians, whose surrender to the Mexican government, ending generations of relentless hostility, was announced a few days ago, are commonly thought of as utter savages, living lives of unrelieved and unredeemed paganism. This, however, is far from being the case. In the early Spanish days, when their relations with white men were better, the tribe was visited by devoted missionaries, who made a very good beginning at converting them to Christian faith and civilized ways.

But the missionaries were compelled to leave, and during the past two centuries, as the creed has been handed down from father to son, it has been greatly distorted. By easy stages it has finally slipped into three major dance ceremonies. The most elaborate of them is the "Penitente-Matachina," though only a little less interesting and weird are the dances known as "Pascola" and "Baila de Venada."

The Penitente-Matachina ceremonies are held during the month of December until Christmas time, and during the latter part of June. At this time especially in the southern part of Sonora, down near Santa Ana, many young Indian men undergo excruciating torture annually to atone for the sins of their community, volunteering their flesh for the elevation of their people.

In each community one is selected, who, garbed only in a breech-cloth, leads a procession composed of every inhabitant of the village, and he seldom returns alive.

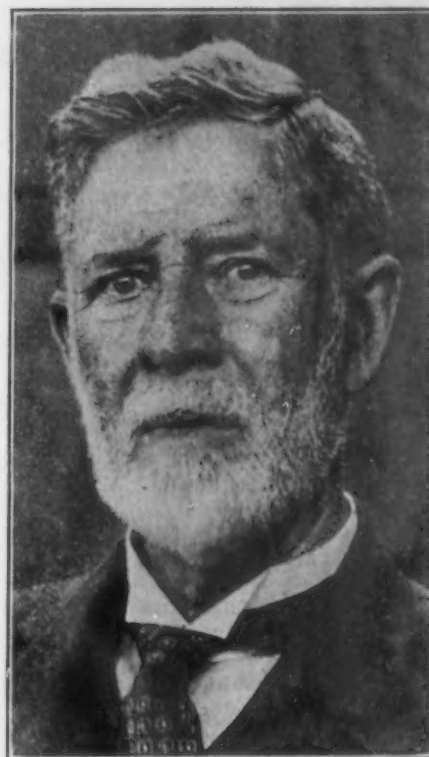
The Indians arm themselves with cactus, and each in turn pricks the "penitente." The more cruel the torture, the more nearly have the people of the community been forgiven for their sins during the year, they believe. The suffering subject, bleeding and generally dying, is then carried back to the Yaqui church, where protracted weird ceremonies are conducted.

This human offering is followed by the "Matachina," which lasts four days and is performed in celebration of the birth of Christ. It is a dance ceremony of great joy, for it is supposed that after a young man has been thus sacrificed the Indians should be unusually happy.

In this ceremony the Yaquis line up in two rows, with the chief of

(Just turn the Page)

PLANT PATHOLOGY



ERWIN FRINK SMITH

Pioneer Pathologist

What Robert Koch was to the early days of human and animal bacteriology, that and more has Dr. Smith been to the bacteriology of plant diseases, in the estimation of his colleagues. One of the pioneers in this field, he has done much to bring together into close relationship the pathology of both plants and animals. His studies on the parasitic origin of plant tumors has had a significant bearing on the scientific research on cancer in animals and man.

Born at Gilbert's Mills, N. Y., in 1854, Dr. Smith received both his undergraduate and doctor's degrees at the University of Michigan. In 1889 after finishing his graduate work he came to the U. S. Department of Agriculture as pathologist and he has been there ever since. He has published many papers both in America and in leading European journals and is a recognized authority in his field. He is now in charge of the laboratory of plant pathology at the Bureau of Plant Industry and occupies an outstanding place both here and abroad in associations devoted to cancer research.

Notwithstanding the impression he has made on the field of experimental biology he has never lost sight of the humanities, so often neglected by scientists, nor of the beautiful things of the mind and the world without.

Science News-Letter, February 5, 1927

The name dromedary means a "runner."

Lumber is now being seasoned by cold air.

Houseflies have a keen sense of smell.

Almost all Indian tribes used drums and rattles.

Most of the volcanoes in the Philippines are now extinct.

Pennsylvania leads the United States in mineral production.

Meat of fat cattle keeps better than meat from thin animals.

Government scientists are studying the food value of sausage.

An alarm clock attachment for wrist watches is a recent novelty.

No iron tool was used in building the Jewish temple at Jerusalem.

A new rubber pavement is being tested in a busy street in London.

Are you interested in human affairs?

The world today is alive to the problems of immigration, race, population, and other aspects of its peoples viewed as groups. A workable understanding of these problems centers largely around the principles and known facts of biological inheritance. These are intelligently and authoritatively discussed in

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Indians' Torture

(Continued from Page 87)

ceremonies between the rows, and an Indian, whose face is covered by a mask resembling the head of a donkey, does considerable writhing of his body. This movement indicates that with the birth of Christ a furious battle was waged against sin.

The dancers are attired in gaudy colors and move to the strains of a band of tom-toms and other Indian instruments, presenting a spectacular and at times grotesque appearance. They perform the curious ceremony, however, with faces of austerity.

Each dancer prances about, until from exhaustion he sinks to the ground. Another immediately takes his place; and the never varying movement, accompanied by the continuous rattle of the gourds, continues unabated through the four days.

At the conclusion of the ceremonies they heave mighty sighs of relief, for they believe they have performed their duty. They believe that they have been forgiven their transgressions and that they can begin a new year with unsullied records. The past has been entirely forgotten, and when a member of the tribe dies during the next year they believe he is punished only for the sins committed during the period following the last atonement ceremonies. They also believe that the young Indians offered for sacrifice, who escape the orgies with their lives, are awarded a place in heaven second in glory only to that of those who succumb to the cruel prickings of the cactus.

Science News-Letter, February 5, 1927

The blackness in dark smoke is chiefly tar.

Carrara marble was first known in Roman times.

Nature Ramblings

(Continued from Page 87)



ice age and the scarcely less shaggy cave men that hunted them.

In a way we are right. The moose was a more abundant animal in those past times that he is now, and his range today is in the forests of the long winter and deep snow, such as must have lain across France and southern Germany when the whole Baltic country was blocked with ice. And moose, ranging in spruce forests "down in Dixie" must have been a strange sight, had there been anyone there to see it. Furthermore, there is a very real prospect that these great beasts may soon join the fantastic company of giants that are no more, for what between repeating rifles and a mysterious disease that decimates their ranks now and again, the moose seem to be gradually vanishing. The ever-shortening days of open hunting seasons may not avail to save them.

The most recently exterminated race of moose were the animals known as the giant Irish elk (for elk and moose are synonymous words in the English speech, though not in ours), which were hunted by the kings of Erin. These were the most impressive hoofed animals that ever lived, standing almost as high as elephants, with great palmated antlers that spread eight feet wide over their shoulders.

Science News-Letter, February 5, 1927

A spider's poison supply is secreted in glands in its head.

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First Glances at New Books

SYMBIONTICISM AND THE ORIGIN OF SPECIES—Ivan E. Wallin—*Williams and Wilkins*. (\$3.) The author contends that many cell inclusions, notably mitochondria and their derivatives, the plastids, are descended from originally symbiotic organisms, and argues from known morphological modifications caused by symbionts and endoparasites for the possibility of the origin of species through the influence of these mitochondrial "organisms."

Science News-Letter, February 5, 1927

HOUSE PLANTS—Emma Davis—*Cornell Rural School Leaflet, Vol. 20, No. 3*. An attractive and practical presentation of the fundamentals of indoor horticulture. It is a pity that this series is not available for distribution outside of New York State.

Science News-Letter, February 5, 1927

MODERN BUSINESS GEOGRAPHY—Ellsworth Huntington and Sumner W. Cushing—*World Book Co.* (\$2). Intended as a text for students who have completed elementary geography courses; it is also an excellent "background" book on geography for teachers of any school grade.

Science News-Letter, February 5, 1927

THE STONE AGE IN RHODESIA—Neville Jones—Foreword by Sir Arthur Keith—*Oxford University Press*. A narrative setting forth in the simplest possible language all that is so far known of Stone Age Rhodesia.

Science News-Letter, February 5, 1927

TROPICAL CYCLONES—Isaac M. Cline—*Macmillan* (\$5). Some new views on these frequently destructive storms by a meteorologist who has had forty years' experience with them.

Science News-Letter, February 5, 1927

AMERICAN LABOR AND AMERICAN DEMOCRACY, Vols. 1 and 2—William English Walling—*Workers Education Bureau Series* (\$1). A comprehensive statement of the political and social policy of the American Federation of Labor written on the basis of labor union documents by a man who has had direct acquaintance with the leaders of the movement and their purposes. The author traces the labor movement through the past forty years and shows the evolution of a new policy for the government of industry, a new political method and view of political government.

Science News-Letter, February 5, 1927

Important American Books of 1925

Out of the millions of books published throughout the world, a world list of 600 important books each year is being selected under the auspices of the Committee on International Intellectual Cooperation of the League of Nations.

The United States was given the privilege of naming 40 of these books and the American National Committee on Intellectual Cooperation delegated the task of compiling the honor list to the American Library Association. The final list of notable books published in 1925, limited to 37 because of the difficulty of choice, has just been announced.

Twenty of the 37 books deal with or relate to the various physical and natural sciences, while three others are classified under social science.

The list as issued is:

HISTORY

JEFFERSON AND HAMILTON—C. G. Bowers—*Houghton*.
HISTORY OF THE UNITED STATES, VOL. VI—THE WAR FOR SOUTHERN INDEPENDENCE—Edward Channing—*Macmillan*.

SOCIAL SCIENCE

SEVENTY YEARS OF LIFE AND LABOR—Samuel Gompers—*Dutton*.
CREATIVE YOUTH—Hughes Mearns—*Double-day*.
CONGRESS, THE CONSTITUTION AND THE SUPREME COURT—Charles Warren—*Little*.

RELIGION

STRANGER THAN FICTION—Lewis Browne—*Macmillan*.
RELIGION OF YESTERDAY AND TOMORROW—Kirsopp Lake—*Houghton*.
ISRAEL—Ludwig Lewisohn—*Boni & Liveright*.

PHILOSOPHY

EXPERIENCE AND NATURE—John Dewey—*Open Court*.
THE MENTAL GROWTH OF THE PRESCHOOL CHILD—A. L. Gesell—*Macmillan*.
DIALOGUES IN LIMBO—George Santayana—*Scribner*.

BELLES LETTRES AND ART

AUTOBIOGRAPHY OF A MAN WHO LOVED THE STARS—John A. Brashear—*Houghton*.
THE LIFE OF SIR WILLIAM OSLER, 2 V.—Harvey W. Cushing—*Oxford*.
ROAN STALLION, TAMAR AND OTHER POEMS—Robinson Jeffers—*Boni & Liveright*.
BOOK OF AMERICAN NEGRO SPIRITUALS—James W. Johnson, ed.—*Viking*.
TWO LIVES—Wm. E. Leonard—*Viking*.
JOHN KEATS, 2 V.—Amy Lowell—*Houghton*.
THE ADVENTURES OF AN ILLUSTRATOR—Joseph Pennell—*Little*.
ONE MAN'S LIFE—Herbert Quick—*Bobbs*.
DIONYSUS IN DOUBT—E. A. Robinson—*Macmillan*.

GEOGRAPHY AND TRAVEL

JUNGLE DAYS—William Beebe—*Putnam*.
NORTH AMERICA—Joseph R. Smith—*Harcourt*.

PHILOLOGY AND LITERARY HISTORY

THE ENGLISH LANGUAGE IN AMERICA, 2 V.—G. P. Krapp—*Century*.
LITERATURE OF THE MIDDLE-WESTERN FRONTIER, 2 V.—R. L. Rusk—*Columbia*.

NATURAL SCIENCE

CALCULUS OF VARIATIONS—G. A. Bliss—*Open Court*.
WHY WE BEHAVE LIKE HUMAN BEINGS—G. A. Dorsey—*Harper*.
CHEMICAL ACTION OF ULTRA-VIOLET RAY—Carleton Ellis and A. A. Wells—*Chemical Catalog*.
NEW ENGLAND-ACADIAN SHORE LINE—D. W. Johnson—*Wiley*.
ELEMENTS OF PHYSICAL BIOLOGY—A.

J. Lotka—*Williams & Wilkins*.
METEORS—C. P. Olivier—*Williams & Wilkins*.
STELLAR ATMOSPHERES—C. H. Payne—*Harvard*.
NORTH AMERICAN WILD FLOWERS, VOL. I—M. V. Walcott—*Smithsonian*.
SCIENCE AND THE MODERN WORLD—A. N. Whitehead—*Macmillan*.
OSTEOLOGY OF THE REPTILES—S. W. Williston—*Harvard*.

APPLIED SCIENCE

THE INVENTION OF PRINTING IN CHINA—T. F. Carter—*Columbia*.
INDUSTRIAL POISONS IN THE UNITED STATES—Alice Hamilton—*Macmillan*.
THE BIOLOGY OF POPULATION GROWTH—Raymond Pearl—*Knopf*.

Science News-Letter, February 5, 1927

PHYSICS

Wonders of Science

(Thoughts on learning that the image of a cabbage as transmitted by television can be converted into sound, turned into a gramophone record, and then, when the record is played, the sound can be converted back into the picture of a cabbage.)

I have seen the turnips singing
By a lordly cabbage led;
I have heard a dewdrop clinging
To the rose that bowed her head;
I have sniffed at a sonata,
I have touched next Friday week;
I have tasted a cantata
I have smelt a sausage speak.

Hours by acres I've divided
And I've proved the answer right;
And I've frequently collided
With a week last Friday night;
And of miracles my fund is
Unexhausted even then—
I have climbed a month of Sundays
And tobogganed down again.

Now of old if I had wildly
Made the claims I do to-day
I should soon, to put it mildly,
Have been firmly led away;
Doctors, acting with decision,
Would have taken me in charge;
Now they call it television—
And, you see, I'm still at large!
—LUCIO in the *Manchester Guardian*.

Science News-Letter, February 5, 1927

Niagara Falls is receding about two feet a year.

"Cancer at the beginning is a purely local infection as the sting of a wasp," said a surgeon recently.

Study of leprosy is difficult because the germs cannot be grown in lower animals or in ordinary media in test tubes.

The steam engine was invented in 1781, but the first steam railroad in this country did not appear until 45 years later.

PHOTOGRAPH OF SCIENTISTS

Science Service has a collection of nearly 2,000 photographs of scientists throughout the world. The first installment of this list is published below. Although this list has been checked with care, corrections are requested, since a complete catalog will be issued later. Photographs of scientists not listed are desired.

For the convenience of teachers and scientific enthusiasts, these photographs are offered for sale. Any ten photographs (each postcard size $3\frac{1}{8} \times 5\frac{3}{8}$ inches) will be sent postpaid for only \$2.00. Enlargements, 8 x 10 inches, are \$1.00 each postpaid. Postcard pictures are finished only in black and white, but enlargements are offered either in black and white or sepia on buff stock. Please specify which.

Starred (*) photographs can be furnished as \$1.00 enlargements only. Photographs at this price are sold with the understanding that they are not to be used for publication.

- | | |
|--------|--|
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| 6062 | Abbot, Chas. G., Astronomy, Smithsonian Inst. |
| 670 | Abel, John Jacob, Pharmacology, Johns Hopkins Medical School |
| 6003 | Abraham, Henri, Physics, Univ. of Paris |
| 292 | Abrams, L. R., Botany, Stanford Univ. |
| 10002* | Adams, Chas. G., Forestry, N. Y. State Dept. |
| 826 | Adams, John M., Physics, University of California |
| 357 | Adams, Walter S., Astronomy, Mt. Wilson Observ. |
| 718 | Addis, Thomas, Medicine, Stanford Medical School |
| 48 | Addison, Wm. H. F., Anatomy, Univ. of Penna. |
| 399 | Adolph, E. F., Physiology, Univ. of Pittsburg |
| 402 | Agersborg, H. P. K., Millikin University |
| 945 | Aitken, Robert G., Astronomy, Lick Observatory |
| 1049 | Akeley, Carl E., Mammalogy, Am. Mus. Nat. Hist. |
| 557 | Allan, F. B., Chemistry, University of Toronto |
| 34 | Allee, W. C., Zoology, University of Chicago |
| 347 | Allen, Bennett M., Biology, Univ. of Calif. |
| 873 | Allen, Charles Elmer, Botany Madison, Wis. |
| 674 | Allen, Edgar, Anatomy, University of Missouri |
| 761 | Allen, Miss E. A., Zoology, Univ. of Calif. |
| 1485 | Allen, W. H., Pharmacy, Detroit Inst. of Tech. |
| 10 04* | Allendy, Psychoanalysis, Paris, France |
| 331 | Alsberg, Carl L., Chemistry, Stanford University |
| 387 | Altenberg, E., Biology, Rice Institute |
| 1005 | Alter, Dinsmore, Astronomy, Univ. of Kansas |
| 770 | Alvarez, Walter C., Med. Research, Hooper Found. |
| 139 | Ambersson, Wm. R., Physiology, Univ. of Tennessee |
| 1105 | Ander, Hans Frederich, Biology, Rice Institute |
| 901 | Anderson, Abram E., Artist, Am. Mus. Nat. Hist. |
| 111 | Anderson, E. G., Genetics, Carnegie Institution |
| 991 | Anderson, G. R., Engineer, Univ. of Toronto |
| 356 | Anderson, J. A., Astronomy, Mt. Wilson Observ. |
| 902 | Anthony, Harold Elmer, Zoology, Amer. Mus. Nat. Hist. |
| 1348 | Appel, Otto, Plant Pathology, Dahlem, Germany |
| 10003* | Archimedes, Physics, Syracuse, Greece |
| 10001* | Aristotle, Natural Science, Greece |
| 1212 | Armstrong, Philip B., Medicine, Cornell Univ. |
| 683 | Ashby, Winifred, Immunology, Mayo Foundation |
| 928 | Ashworth, J. H., Zoology, Univ. of Edinburgh |
| 348 | Atsatt, Sarah R., Biology, Univ. of California |
| 414 | Atwell, C. B., Botany, Northwestern University |
| 1374 | Atwood, W. M., Botany, Ore. Agric. College |
| 644 | Auer, John, Pharmacology, Washington University Medical School |
| 1170 | Austin, Mary, Zoology, Columbia University |
| 1031 | Avery, Oswald T., Pathology, Rockefeller Institute |
| 1045 | Azuma, Ryotaro, Physiology, Imperial, Univ., Tokio |
| B | |
| 959 | Babb, M. J., Mathematics, Univ. of Pennsylvania |
| 244 | Babcock, E. B., Genetics, Univ. of California |
| 355 | Babcock, Harold D., Astronomy, Mt. Wilson Observ. |
| 782 | Bailey, Edna W., Biology, University of Calif. |
| 1494 | Bailey, L. H., Taxonomy, Cornell University |
| 1090 | Bailey, J. P., Chemistry, University of Texas |
| 834 | Bailey, Vernon, Biology, U. S. Biological Survey |
| 1209 | Baitsell, George A., Biology, Yale University |
| 1168 | Baker, Herbert N., Zoology, Johns Hopkins Univ. |
| 1246 | Baker, W. B., Protozoology, Emory University |
| 1025 | Baker, Robert, Sculptor, Rockefeller Institute |
| 690 | Baldwin, Frances Marsh, Physiology, Iowa State College |
| 737 | Ball, Gordon H., Zoology, Univ. of California |
| 1214 | Ball, T. R., Chemistry, Washington Univ. |
| 2050 | Banks, G. B., Civil Engineering, Niagara Univ. |
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| 422 | Beerman, H., Zoology, Univ. of Pennsylvania |
| 10013* | Behal, Chemistry, University of Paris |
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SCIENCE SERVICE

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Anniversaries of Science

February 10, 1913.—A report was published that Capt. R. F. Scott had reached the South Pole, but on the return journey he and four members of his party perished.

When we read of the deaths of such men as Captain Scott, the explorer, and his companions, we are profoundly moved but we rarely stop to analyze our emotions. If we did so, we should discover that they were those of acute happiness and entirely removed from pity. We should not even wish these men alive again—as little as we should wish to destroy a work of art which they, as supreme artists, had been able to complete with that final gesture. But we refuse to acknowledge that war is the average man's unique opportunity to follow their example.

—I. A. R. Wylie: *Gentlemen Prefer Wars* in *Harpers Magazine*, January, 1927.

February 11, 1847.—Thomas A. Edison was born at Milan, Ohio.

Edison came of plain people who were of the pioneer stock that built up the Middle West. At the age of eleven he was experimenting with chemicals in the cellar of his father's house. From many sources he had gathered together 200 large bottles, which he marked "Poison" to keep intruders from meddling with them. Then he filled them with mixtures and solutions of his own making, obtaining the materials from the village drug-store. At the age of fifteen he was the possessor of important books on chemistry and physics, and the owner of an apparatus for his experiments. So great a drain on his scant allowance were his experiments, that he persuaded his parents to permit him to become a train news-boy. By this time the Edisons had moved to Port Huron, and the young inventor made the daily run from that town to Detroit, a distance of sixty-three miles, by the Grand Trunk Railroad. He carried his experimental apparatus with him, for in the baggage-car he had a small laboratory and also a printing-press.

From train-boy he graduated into a telegraph-operator, and thus came in touch with the powerful force of which he was to become a master. By 1877, he was well established in a laboratory at Menlo Park, near Elizabethport, New Jersey, with sufficient capital to engage assistants and to work out one of the ambitions of his life, the subdivision of the electric current.

Arc-lights were clearly too big and dazzling for the home. What was wanted was a little lamp to which a comparatively small amount of current from a main conductor could be fed, just as small gas-pipes tap large gas-mains for home gas-lighting. Contemporary scientists were quite sure that this could not be done, and they were very solemn and profound when they learned of the unusual proposal of Edison. John Tyndall, one of the most eminent physicists of England, smiled when he read of the great task which the former train-boy had set for himself, and in extenuation said that he would rather have Edison attack the problem than himself.

—M. Luckiesh: *From Rushlight to Incandescent Lamp in A Popular History of American Invention*.

February 11, 1650.—Death of Rene Descartes, the French philosopher.

To his French followers and English enemies the central notion in Descartes was the primacy of consciousness—his apparently obvious proposition that the mind knows itself more immediately and directly than it can ever know anything else; that it knows the "external world" only through that world's impress upon the mind in sensation and perception; that all philosophy must in consequence (though it should doubt everything else) begin with the individual mind and self, and make its first argument in three words: "I think, therefore I am" (*Cogito, ergo sum*). Perhaps there was something of Renaissance individualism in this starting-point; certainly there was in it a whole magician's hat-full of consequences for later speculation.

—Durant: *The Story of Philosophy*.

Science News-Letter, February 5, 1927

ASTRONOMY

Second Comet Found

The second cometary discovery of the year has just been made, like the first, by an amateur astronomer in South Africa, according to Dr. Harlow Shapley, director of the Harvard College Observatory.

The new comet, which is of the eighth magnitude, too faint to be seen except with telescopic aid, was found by William Reid, of Rondebosch, South Africa, on the evening of Wednesday, January 26. It was then in the constellation of the Toucan, a star group near the south pole of the heavens which can never be seen from countries in the northern hemisphere. As astronomers express it, in the celestial equivalent of latitude and longitude, its position at the time of discovery was 22 hours 30 minutes 40 seconds right ascension and 57 degrees 49 seconds south declination. It was moving southwest, so it is doubtful whether it will come into a position that will make it visible to northern observers, but as soon as two more observations of it are made, its exact path can be computed.

The year's first comet was discovered on January 11, by Blathwayt, another South African amateur. Reid and Blathwayt each discovered a comet last year.

Science News-Letter, February 5, 1927

Bushmen, once numerous in Africa, are rapidly becoming extinct.

In ancient times standard weights of high accuracy were made from glass.

Almost 500 varieties of narcissus were imported into this country last autumn.

ANTHROPOLOGY

Geography of Heaven

If a geographer ever tries to include heaven, its population, climate, resources, and occupations in a text book, he will have to describe a country more varied than the United States or any other country on earth, according to the specifications discovered by G. T. Renner, Jr., instructor at Columbia University. He pointed out that nearly every race of men have conceived of an ideal environment for a future life. Each race has pictured this ideal country as having none of the disadvantages of its own surroundings and all of the advantages of its environment at its best.

"The typical forest man," Mr. Renner says, "conceives of heaven as a remote village in a land of inactivity, with no heat or mosquitoes, and plenty of wives and yams. The Eskimo places heaven in the warm earth and hell in the cold sky. The Comanche Indian conceived of heaven as a prairie full of bison; the Todas, as a land of pastures and dairies. Heaven to the Hebrew was a city on a height, walled off from the desert nomad. The Mohammedan pictures heaven as a delightful well watered oasis, and hell as a hot scorching place with hot desert winds to breathe and bitter desert water to drink."

Science News-Letter, February 5, 1927

SEISMOLOGY

To Watch Quakes Closer

A more careful study of earthquake waves that travel along the surface of the earth may permit seismologists to determine more accurately where an earthquake occurs.

Seismic disturbances send out three kinds of waves, says Frank Neumann, of the United States Coast and Geodetic Survey, the first two sets of which travel through the inside of the earth and the third along the surface crust. Though the first two in their travel encounter material of various densities, the third set go only through a layer of the earth of approximately the same density throughout. Mr. Neumann suggests that this third set is really several phases, rather than one, and that it might be possible in cases where the second set is doubtful, to locate the earthquake from them.

Science News-Letter, February 5, 1927

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Fundamental Concepts of Physics, \$2.00

By PAUL R. HEYL. E. E. Slosson says of it: "A single paragraph diluted to the degree considered palatable by the popular press will fill a full column. I have tried it." It deals with the philosophy of the development of physical science.

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Vagaries. \$2.50

By W. J. HUMPHREYS. Every season comes a new crop of rain-makers. The author shows why the crop is always new. A third of the book devoted to weather delusions. Vastly entertaining.

The Beaver. \$3.00

By EDWARD R. WARREN. The dam beaver is a highly interesting contemporary when you get to know him. Scientifically sound; it is the second in a series of monographs motivated by The American Society of Mammalogists. Yet a book for anybody who likes his animals wild.

Fogs and Clouds. \$4.00

By W. J. HUMPHREYS, of the United States Weather Bureau, and inspired collector of cloud photographs. Nearly a hundred selected examples appear in this volume

making a pictorial index to the nearer heavens. The text is interesting too.

Medicine: An Historical Outline, \$3.00

By M. J. SEELIG. Just the book for one who wants a rapid-fire view of the strange and amazing history of medical development. Ample illustrated, the tale is vividly told. Introduction by Fielding H. Garrison.

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By KNIGHT DUNLAP. "A clear, readable scholarly presentation" says *Political Science Review*. By one of the leading psychologists of the world, based strictly on modern scientific psychology. No student of either sociology or psychology can afford to be without it.

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